Hitachi Power Tools

TECHNICAL DATA AND SERVICE MANUAL

LIST Nos.
CS 33EA : E056 Mar.2009
CS 33ET : E055 Mar.2009

PRODUCT NAME

Hitachi Engine Chain Saw

Models CS 33EA
CS 33ET

C

MARKETING OBJECTIVE

The new Models CS 33EA and CS 33ET engine chain saw are the minor-changed version of the current Models CS 30EG and CS 35EJ. The new Models have suited EPA PHASE2, CARB Tier3 and 2004/26/EC.
In addition, the appearance is changed to the one for a next-generation model.
With the new Models CS 33EA and CS 33ET, we aim to enhance the share of the Hitachi engne chain saw series.

APPLICATIONS

Sawing various types of lumber. Examples of application:
- Forestry: Lumbering and cutting off tree branches.
- Gardening: Cutting off tree branches, pruning and trimming.
- Home use: Cutting firewood, rough cutting in do-it-yourself carpentering.
- Leisure: Cutting firewood at camping sites.
- Farm: Cutting firewood, preparing lumber for cultivating mushrooms and cutting off tree branches.
- Carpentering: Rough cutting or cast-away cutting of pillars, back slitting, cutting used lumber and timber cutting.
- Civil engineering and construction: Cutting posts to equal length, cutting used lumber and timber cutting.
- Others: Rough cutting for large wood carvings.

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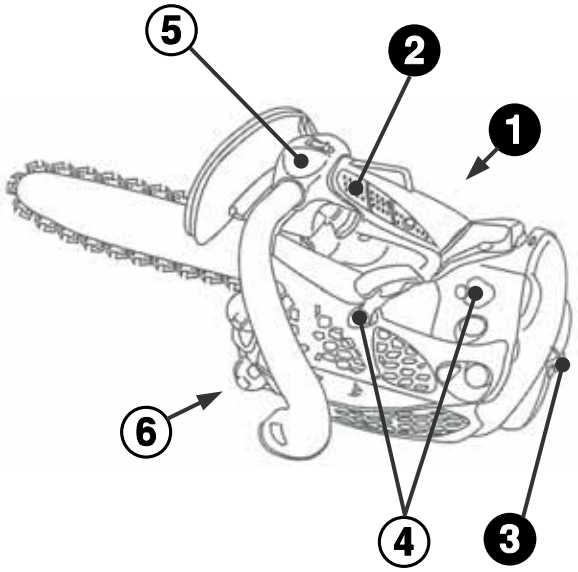
SELLING POINTS

[NEW FEATURES]

1 New Pure Fire engine
2 Soft grip handle (The first in the industry)
3 Slide hook (CS33ET)

[Same features as the conventional models]

④ S-Start
⑤ Steering wheel shape by human engineering
⑥ The best balance



[CS33ET]

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

HITACHI

Hitachi Koki Co., Ltd.
International Sales Division

REMARK:

• For more information about HANDLING INSTRUCTIONS, visit our website at:

http://www.hitachi-koki.com/manual_view_export/

• Throughout this TECHNICAL DATA AND SERVICE MANUAL, the symbols are used in the place of company names and model names of our competitors. The symbols utilized here are as follows:

Symbols Utilized	Competitors	
	Company Name	Model Name
A	STIHL	MS192T
B	ECHO	CS-330T
C	Husqvana	235e
D	ECHO	CS-370

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Assembly diagram for CS 33EA
Assembly diagram for CS 33ET

SELLING POINT DESCRIPTIONS

❶ New Pure Fire Engine

Equipped with the Pure Fire Engine, a clean emission engine compliant with the second emission regulations specified in the U.S.A. and Europe (EPA PHASE2, CARB Tier3, 2004/26/EC).
(Note that emission values differ depending on countries and regions.)

	Regulation value g/kWh	CS33EA/ET 32.3mL
HC+Nox (Unburnt material + nitrogen oxide)	50 or less	50 or less

❷ Soft grip handle (The First in the industry)

Adopted the soft grip handle molded with elastomer in two layers for easy, non-slippery gripping, giving less strain to the operator.

❸ Slide hook (CS 33ET)

The hook used for hanging when the operator moves during elevated work can be housed inside the body if unused, thereby improving workability.

When housed

When used

④ S-Start

The newly adopted coil damper type of recoil starter reduces the pulling force required for the starter by half from our previous model, thereby simplifying starting operation. Moreover, the new throttle-linked choke eliminates the bothersome step of having the operator return it to the original position as on the old choke.

⑤ Steering wheel shape by human engineering

The handle is indented to accommodate the operator's thumb when gripped, thereby affording easier gripping.

⑥ The best balance.

The chain saw's center of gravity is optimally located for better balance and consequently better workability.

SPECIFICATIONS

Model	CS 33EA	CS 33ET	Remarks
Engine type	Air-cooled, two-cycle gasoline engine		
Cylinder quantity — inner diameter x stroke	1-37 x 30 mm		
Engine displacement	32.3 mL		
Momentary no-load revolutions	12,000 min^{-1}		
Service revolutions	7,000 to 9,000 min^{-1}		Revolutions at actual work
Idling revolutions	2,800 to 3,200 min^{-1}		
Rotation direction	Clockwise		When viewed from end of the output shaft
Service fuel	Mixed gasoline Gasoline: oil for two-cycle exclusive = (25 to 50): 1		
Fuel tank capacity	30 mL (Continuously for 20 to 30 minutes)		
Carburetor	Diaphragm type (from Walbro)		
Spark plug	NGK BPM6A or BPMR6A		
Starting method	Coil damper type recoil starter method		
Air cleaning method	Dry		
Stopping method	Ground		
Muffler type	Silencer		
Power transmission method	Automatic centrifugal clutch		
Guide bar length	350 mm (14 inch), SN	300 mm (12 inch), SN	SN: Sprocket nose
Saw chain used	91VG-52	91VG-45	From Oregon
Saw chain	Pitch: 3/8 inch; gauge: 0.05 inch		
Sprocket	Star, six teeth		
Chain oil feeding method	Automatic feed		Oil amount adjusting type
Chain oil tank capacity	190 mL		
Chain oil discharge rate	3 to 8 mL/minute (8,000 min^{-1})		Standard opening degree: 1-1/4 turns back from totally closed position
Chain oil used	Dedicated chain oil		
Handle	Equipped with anti-vibration device		
Anti-vibration mechanism	Engine floating type		
Dry weight	4.3 kg	4.1 kg	
Overall dimensions (L x W x H)	394 x 262 x 238 mm	279 x 264 x 225 mm	Excluding chain and chain bar

COMPARISONS WITH SIMILAR PRODUCTS

Handle location		Top			Rear		
Item \ Manufacturer/ Model		HITACHI CS 33ET	A	B	HITACHI CS 33EA	C	D
Piston displacement	mL	32.3	30.1	32.6	32.3	34.4	36.3
Maximum output	kW	1.2	1.2	1.2	1.2	1.3	–
Tank capacity	mL	300	270	310	300	300	410
Oil tank capacity	mL	190	220	290	190	190	280
Bar length	cm (inch)	30, 35 (12”)(14”)	30 - 40 (12”-16”)	30 - 40 (12”-16”)	30, 35 (12”)(14”)	30 - 40 (12”-16”)	35 - 45 (14”-18”)
Chain pitch	Inch	3/8	3/8	3/8	3/8	3/8	3/8
Soft grip	–	Presented	None	None	Presented	None	None
Emission standard	50g/kWh or less	EPA Phase2	Not in compliance	EPA Phase2	EPA Phase2	EPA Phase2	Not in compliance
Device to reduce pulling force	–	Presented	None	Presented	Presented	Presented	Presented
Body dry weight (Excluding chain and chain bar)	kg	4.1	3.2	3.6	4.3	4.7	4.5
Overall L x W x H	mm	279 x 264 x 225	245 x 205 x 223	277 x 233 x 214	394 x 262 x 238	377 x 244 x 246	390 x 270 x 290

(Superior specifications:)

PRECAUTIONS IN SALES PROMOTION

To ensure that customers safely and efficiently use the engine-powered chain saw after its purchase, urge them to thoroughly read the instruction manual and understand the importance of the caution plates described therein and attached to the product.
Tell the customers to refer to the instruction manual for how to properly handle, maintain, inspect and store the product, with emphasis placed on periodic inspection.
Advise them to utilize our replenishment and repair systems for spare parts.

1. Instruction Manual

Each process of chain saw design, fabrication and inspection is subject to the utmost care to ensure safety as a commercial product; however, an engine-powered chain saw is inherently dangerous. To protect customers against such danger and ensure safe use of the engine-powered chain saw, the Instruction Manual describes precautions on using the product. Upon selling the product, urge the customers to carefully read the Instruction Manual and give them appropriate guidance.

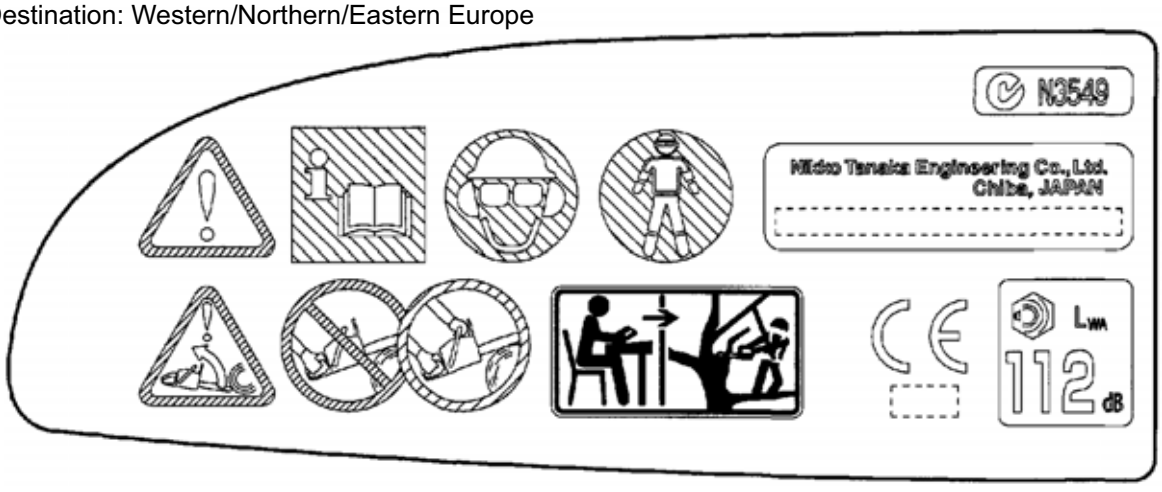
2. Caution Plate

The nameplate and caution plates attached to the product describe cautions requiring special attention to ensure the safe use of the product.

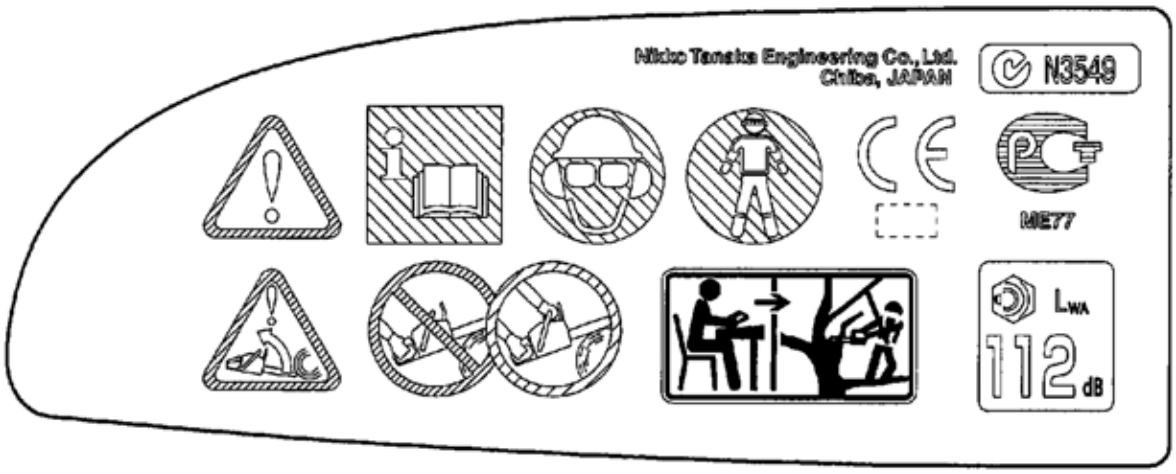
Destination: USA

IMPORTANT ENGINE INFORMATION
Nikko Tanaka Engineering Co., Ltd.
THIS ENGINE CONFORMS WITH U.S. EPA PH2 AND 2008 AND LATER CALIFORNIA EXHAUST AND EVAPORATIVE REGULATIONS FOR SMALL OFF-ROAD ENGINES.
EMISSION CONTROL SYSTEM:TWC
ENGINE FAMILY NAME:
ENGINE DISPLACEMENT:
REFER TO OWNER'S MANUAL FOR MAINTENANCE
WARNING
Read and follow all safety precautions in the owner's manual.
Failure to follow instructions could result in serious injury. Avoid contact of bar tip with any object. This may cause bar to "KICKBACK" suddenly, which may cause serious injury.
Always use two hands to operate the saw. The following bar and chain combinations are approved for reducing kickback:
12"Chain and Bar
14"Chain and Bar
16"Chain and Bar

Destination: Western/Northern/Eastern Europe



Destination: Australia, Russia and Eastern Europe



3. Thorough Instruction to the Customers

(1) Thorough instructions on start/stop methods

Thoroughly instruct the customers on how to start and stop the product.

Regarding startup, emphasize the difference between “when the engine is cool” and “when the engine is warm,” and focus on cautions regarding chain blade rotation with the choke fully open after initial combustion at choke startup and at startup with the throttle open halfway.

(2) Fuel used

- ○ This product is equipped with a two-cycle gasoline engine; instruct the customers how to use the fuel mixed adequately at a ratio of [25 to 50] to one for gasoline and two-cycle dedicated oil.
- ○ Using plastic bottles such as polyethylene and PET to store the fuel will lead to trouble due to dissolved plastics components. Instruct the customers to use bottles specifically designed to store the fuel.
- ○ The fuel deteriorates and changes in quality when stored for a long time. Improper storage conditions such as a loose plug in summer may cause deterioration even in one day. Therefore, instruct the customers not to store prepared fuel, but only prepare fuel on an as-needed basis.

(3) Chain oil

Instruct the customers to use Hitachi chain saw oil (1 liter) sold separately or commercially available SAE20 or SAE30 engine oil.

Remind the customers to always replenish the chain oil when replenishing the fuel.

(4) Adjusting saw chain tension

Low saw chain tension may damage the blades or guide bar, and even result in blades being detached under extremely low tension. In particular, new saw chain tend to quickly elongate; therefore, advise the customers to frequently adjust saw chain tension.

(5) Storage

When the chain saw is not to be used for a prolonged period, instruct the customers to empty the fuel tank and run the chain saw in idling mode until it stops in order to empty the carburetor.

The carburetor must be emptied since the gasoline component of mixed fuel left in the carburetor will vaporize over an extended period of time, thereby inhibiting engine startup next season due to the fuel line being clogged by a film of two-cycle dedicated oil.

TROUBLESHOOTING GUIDE

Situation		Cause	Measure
Starter handle cannot be pulled.	The crankshaft does not rotate.	Seizure of the piston ring Seizure of the connecting rod bearing	Disassembly and parts replacement
Startup is impossible.	The plug does not become wet with fuel after repeated starting operation.	No fuel in the tank	Replenishment
		Clogged fuel filter	Cleaning or replacement
		Faulty vent hole (check valve) on the tank	Replacement
		Dirt clogging the carburetor	Cleaning
		Poor throttling and pumping	Appropriate starting method
	No spark	Dirty or faulty plug	Cleaning or replenishment
		Improperly connected plug cap	Inspection and replacement
		Disconnected or improperly connected high voltage cord	Repair or replacement
		Ground connection of the high voltage cord	Repair
		Disconnected or faulty ignition coil	Replacement
	Short-circuited due to foreign matter between the plug electrodes.		Removal of foreign matter: In case of frequent occurrence, disassemble and clean the engine.
	No compression	Faulty piston ring	Parts replacement
		Worn piston	
		Expired service life of the oil seal	
Idling stops although startup is possible.	Weak spark	Dirty or faulty plug	Cleaning or replacement
		Improper air gap	Adjustment
	Low compression	Worn piston ring	Replacement
		Expired service life of the oil seal	Replacement
	Good spark and compression	Revolutions too low for idling	Adjustment
Starts, but when accelerates …	The engine stalls.	Clogged fuel filter	Cleaning or replacement
	Poor acceleration; no increase in revolutions	Muffler clogged with carbon	Cleaning
		Clogged air cleaner	
		The chain brake is on.	Release
Starts, but …	Fluctuating revolutions at high speed	Dirt clogging the high-speed fuel line	Cleaning
	Excessive fuel consumption	Clogged air cleaner	Cleaning
Chain oil is not discharged.		No oil in the tank	Replenishment
		Clogged oil filler port	Cleaning
		Clogged oil filler port on the guide bar	
		Clogged oil filter	
		Faulty adjustment of chain oil discharge amount	Adjustment

REPAIR GUIDE

This section describes repair, focusing on portions requiring frequent repair. Refer to the previous section TROUBLESHOOTING GUIDE as the context below follows it.

1. Precautions on maintenance, inspection and repair

- ○ The fuel used readily ignites; therefore, never bring the product near a flame.
- ○ Use new gaskets at reassembly.
- ○ Prior to disassembly for repair, remove the fuel and chain oil into separate containers, and allow the engine to cool down.
- ○ When performing repair, startup or running, use adequate care for portions posing the risk of burn injury or electric shock, such as hot areas including the muffler, high voltage cord and spark plug.
- ○ Before running the product with the chain bar and chain blades attached, make sure that there are no other people nearby.
- ○ Ensure proper ventilation when performing repair in a small room or other poorly ventilated space.
- ○ After completing repair, always return the throttle lever to the idling position and set the stop switch to the engine stop position.

2. Inspection criteria for each section and consumable parts

Item		CS33EA / CE33ET
Idling revolutions	min^{-1} (rev./min)	2,800 to 3,200
No-load maximum revolutions (with guide bar and chain blades)	min^{-1} (rev./min)	12,000
Clutch engagement	min^{-1} (rev./min)	4,100 to 4,500
Accelerating performance		To be smoothly accelerated
Gap between the magneto rotor and ignition coil	mm	0.3
Spark plug		NGK BPM6A or BPMR6A
Gap between spark plug electrodes	mm	0.6
Adjustment of chain oil discharge amount		1-1/4 turns back from totally closed position
Height of the carburetor metering lever		Position 1.65 mm lower than carburetor body surface
Chain blade type		Oregon 91VG
Chain blade pitch x gauge	inch	3/8 x 0.05
No. of the chain blade drive links		45 (12”), 52(14”)

Repair flow chart

Pull the recoil starter.
Pulling is possible when you feel a slight compression.

Impossible to pull →

Broken piston ring	Replacement
Seized piston or cylinder	Replacement
Broken connecting rod needle bearing	Replacement
Seized ball bearing	Replacement
Magneto rotor contact with ignition coil	Adjustment
Broken starter	Inspection/replacement
Faulty startup pawl	Inspection/replacement

OK ↓

Remove the spark plug to check for sparks. Sparks are generated.

No spark →

Stop switch not in the startup position	Setting to the startup position
Dirty or faulty spark plug	Cleaning/inspection
Disconnected or improperly connected high voltage cord and other wiring	Inspection
Ground connection of the high voltage cord and other wiring	Inspection
Disconnected or faulty ignition coil	Replacement
Excessive gap between magneto rotor circumference and ignition coil	Adjustment

OK ↓

Return the spark plug and plug cap to the original positions, and then perform proper startup operation. Confirm that the tip of the spark plug becomes wet with fuel.

Dry →

Clogged fuel filter	Cleaning/replacement
Cracked fuel pipe	Replacement
Faulty tank vent hole (check valve)	Replacement
Faulty pump diaphragm of the carburetor	Replacement
Dirt clogging the carburetor	Cleaning

OK ↓

There is compression.

No compression →

Faulty piston ring	Cleaning/replacement
Worn piston ring	Replacement
Worn piston	Replacement
Worn or damaged oil seal	Replacement

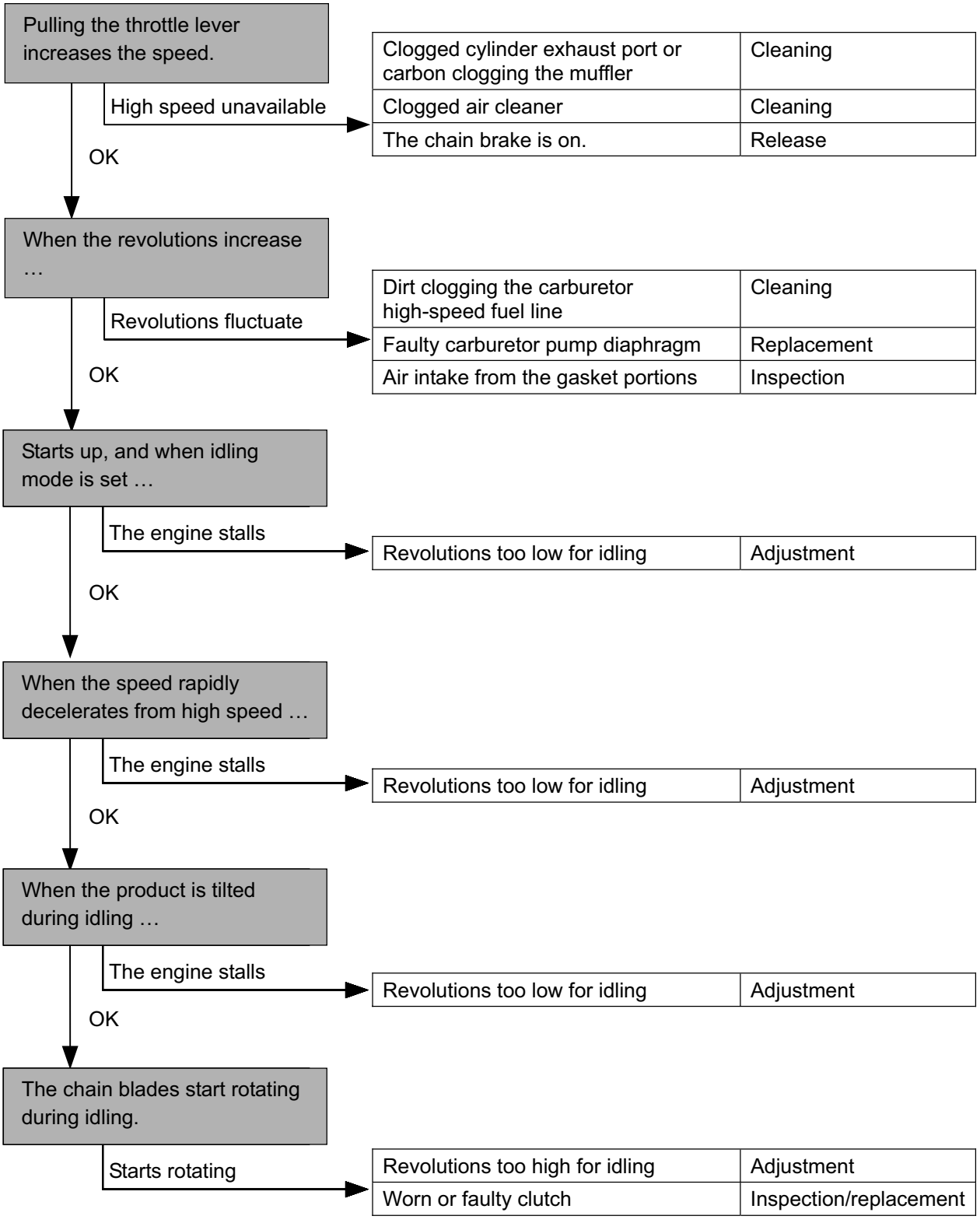
OK ↓

The engine starts, but when the throttle is pulled …

The engine stalls →

Clogged fuel filter	Cleaning
Inadequate warm-up, especially in cold weather	Warm-up

OK ↓


Pulling the throttle lever increases the speed.
High speed unavailable
Clogged cylinder exhaust port or carbon clogging the muffler
Cleaning
Clogged air cleaner
Cleaning
The chain brake is on.
Release
OK
When the revolutions increase …
Revolutions fluctuate
Dirt clogging the carburetor high-speed fuel line
Cleaning
Faulty carburetor pump diaphragm
Replacement
Air intake from the gasket portions
Inspection
OK
Starts up, and when idling mode is set …
The engine stalls
Revolutions too low for idling
Adjustment
OK
When the speed rapidly decelerates from high speed …
The engine stalls
Revolutions too low for idling
Adjustment
OK
When the product is tilted during idling …
The engine stalls
Revolutions too low for idling
Adjustment
OK
The chain blades start rotating during idling.
Starts rotating
Revolutions too high for idling
Adjustment
Worn or faulty clutch
Inspection/replacement

Repair procedures

The **[Bold]** numbers in the descriptions below correspond to the item numbers in the Parts List and the exploded assembly diagram for Model CS 33EA and the **<Bold>** numbers to those in the Parts List and the exploded assembly diagram for Model CS 33ET.

Always stop the engine prior to disassembly or when replacing the saw chain.

1. How to check for sparks generated by the spark plug

CAUTION:

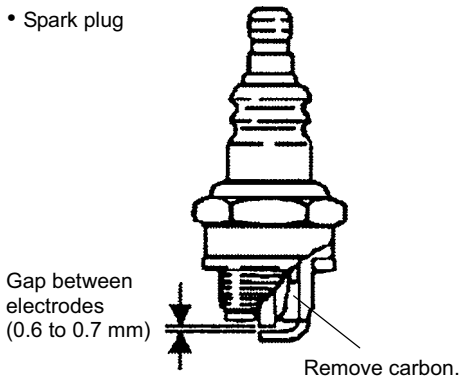
- **Be careful not to touch the metallic portion of the spark plug when pulling the starter handle; otherwise, you run the risk of electric shock.**
- **Carefully wipe off any fuel around the plug to avoid a sudden breakout of fire.**

(a) Remove the spark plug from the cylinder set.
Use a wire brush to clean off carbon accumulated on the spark plug electrodes, as needed. Adjust the gap between the electrodes if necessary. Use a cloth to wipe off any fuel on the electrodes. Remove the fuel left in the crankcase according to the procedure below.
(1) With the spark plug removed from the cylinder set,
(2) Open the choke (with the stop switch in the stop position),
(3) Open the throttle (with the throttle lever pulled), and
(4) Pull the starter handle several times.

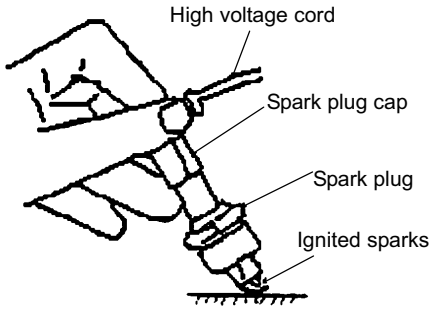
(b) Insert the spark plug into the spark plug cap, and then place the electrodes in contact with the metallic portion of the engine. Under these conditions, set the stop switch to the startup position and pull the starter handle.

(c) When all the above are normal, the spark plug electrodes make a snapping sound to generate sparks.

• Spark plug



• Checking for sparks



2. Adjusting the gap formed between the magneto rotor and spark plug coil assembly

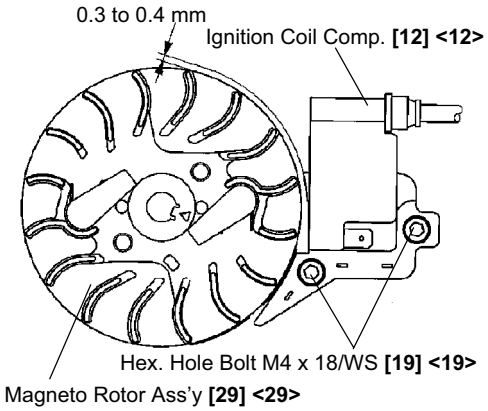
(a) Remove the Tapping Screw D4.5 x 20 **[140] <141>**, and then the Recoil Starter Ass'y **[139] <140>**.

(b) Loosen the Hex. Hole Bolt M4 x 18/WS **[19] <19>** so that the Ignition Coil Comp. **[12] <12>** is temporarily tightened.

(c) Adjust the gap between the circumference of the Magneto Rotor Ass'y **[29] <29>** and the Ignition Coil Comp. **[12] <12>** to be 0.3 to 0.4 mm.

(d) Under this condition, firmly tighten the Hex. Hole Bolt M4 x 18/WS **[19] <19>**.

• Magneto Rotor Ass'y and Ignition Coil Comp.



3. Electric Wiring

The following diagram shows the wiring.

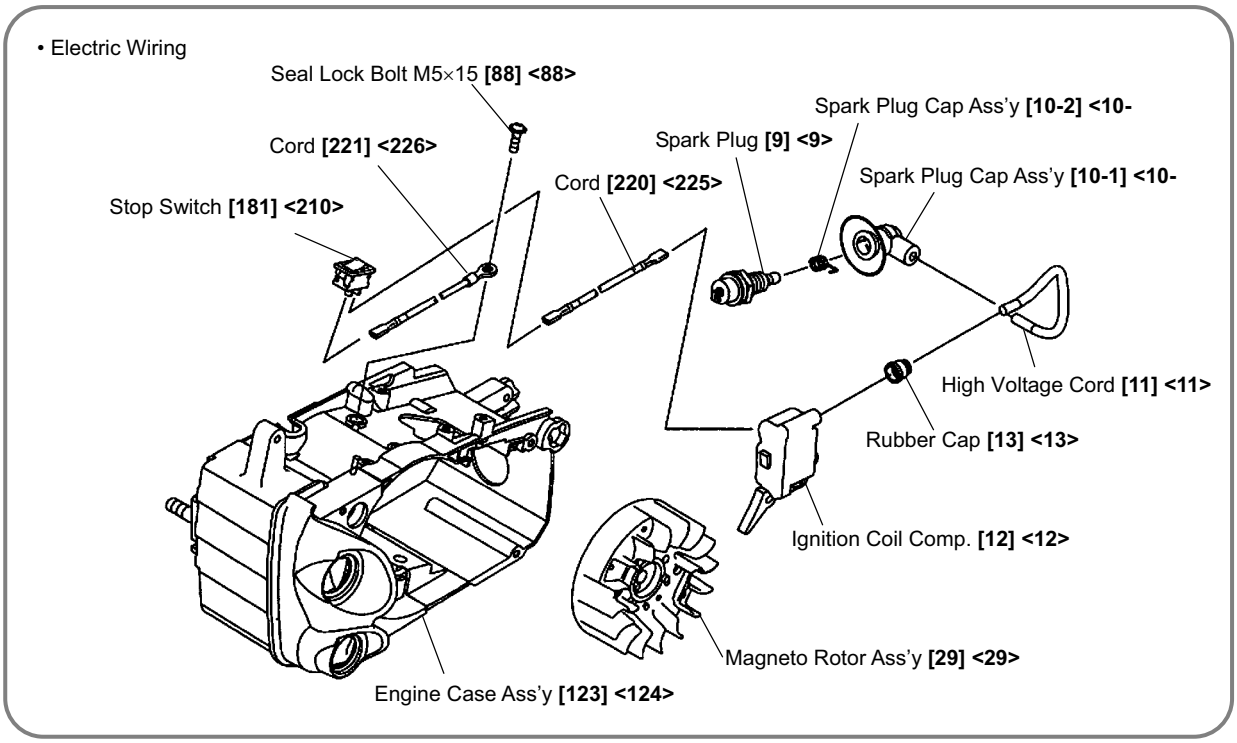
(a) When connecting the High Voltage Cord **[11] <11>** and Spark Plug Cap Ass'y **[10-1] <10-1>**, insert the High Voltage Cord **[11] <11>** with a small amount of oil applied to its tip into the Spark Plug Cap Ass'y **[10-1] <10-1>** in the arrow direction, and then pull the cord from the rear of the Spark Plug Cap Ass'y **[10-1] <10-1>**.

Then insert the Spark Plug Cap Ass'y **[10-2] <10-2>** into the High Voltage Cord **[11] <11>** so that the assembly penetrates through the core wire of the high voltage cord.

Pull back the High Voltage Cord **[11] <11>** to the original position, and house the Spark Plug Cap Ass'y **[10-2] <10-2>** within the Spark Plug Cap Ass'y **[10-1] <10-1>**.

(b) Use the Cord **[220] <225>** to connect the connector of the Ignition Coil Comp. **[12] <12>** to the Stop Switch **[181] <210>**.

(c) After passing the Seal Lock Bolt M5 x 15 **[88] <88>** through the terminal of the Cord **[221] <226>**, tighten the bolt onto the Engine Case Ass'y **[123] <124>**.



4. Adjusting the Carburetor

(a) Use the screw to adjust the carburetor.

• Idle Adjust Screw

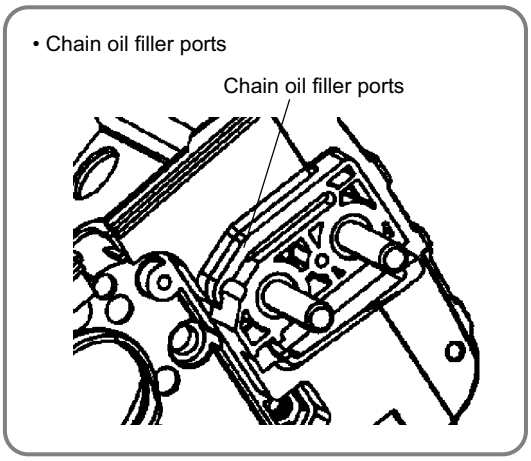
Use the screw for adjusting the amount of air during idling. Turning the screw clockwise increases the engine revolutions; turning it counterclockwise decreases the engine revolutions.

(b) Standard setting of the carburetor
• Idle Adjust Screw
2,800 to 3,200 min^{-1} [rev./min]
(Confirm that the saw chain does not rotate.)

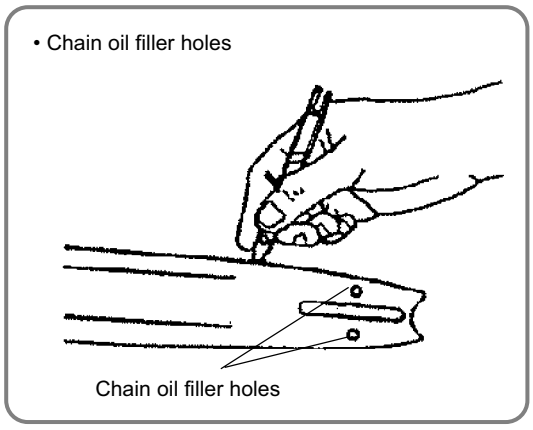
(c) Fine adjustment
• Idling adjustment
(i) By using the Idle Adjust Screw **[224] <231>**, set the revolutions so that the saw chain does not start rotating while the engine runs stably.
(ii) Set the idling revolutions to 2,800 to 3,200 min^{-1} [rev./min] by using the Idle Adjust Screw **[224] <231>**.

5. Cleaning the chain oil filler ports

(a) Remove the Chain Bar **[110] <111>** and remove sawdust clogging the filler ports.



(b) Remove sawdust from the groove on the Chain Bar **[110] <111>** along which the saw chain travels and from the chain oil filler holes.



Disassembly and reassembly

(a) With the Cylinder Set **[7] <7>**, Piston Set **[3] <3>** and Piston Ring **[4] <4>** removed, remove carbon accumulated on the cylinder exhaust port and piston, and use gasoline to thoroughly clean the disassembled components.
Reassemble the piston so that the arrow provided on the piston head points toward the muffler (clutch).
Apply two-cycle dedicated oil to the bearings and sliding sections for assembly.
(b) Make sure that the Clutch Comp. **[93] <94>** is left-threaded in the crankshaft.

Screw tightening torque

Units : N•m {kgf•cm}

Location		Quantity	Dimension	Tightening torque
Recoil Starter Ass'y	Fan Case Comp. **[136] <137>**	4	Tapping Screw D4.5 x 20 **[140] <141>**	2.0 to 3.0 {20 to 30}
	Magneto Rotor Ass'y **[29] <29>**	1	Flywheel Nut **[31] <31>**	15.0 to 20.0 {150 to 205}
	Ignition Coil Comp. **[12] <12>**	2	Hex. Hole Bolt M4 x 18/Ws **[19] <19>**	4.5 to 5.5 {26 to 46}
	Rear Handle (A) Comp. **[202] <227>**	2 (EA) 3 (ET)	Tapping Screw D5 x 45 **[199] <203>**	2.0 to 3.0 {20 to 30}
	Spark Plug **[9] <9>**	1	M14	13.0 to 17.0 {130 to 170}
	Carburetor Ass'y **[182] <178>**	2	Hex. Socket Hd. Bolt M5 x 50 **[171] <196>**	4.0 to 5.0 {40 to 50}
	Cylinder Set **[7] <7>**	4	Hex. Hole Bolt M5 x 20/S **[8] <8>**	4.0 to 6.0 {40 to 60}
	Scavenging Cover (A) **[17] <17>**	2	Hex. Socket Hd. Bolt M4 x 10 **[16] <16>**	2.5 to 4.5 {25 to 45}
	Engine Case Ass'y **[123] <124>**	5	Seal Lock Bolt M5 x 15 **[88] <88>**	7.0 to 11.0 {70 to 110}
	Clutch Comp. **[93] <94>**	1	M8	23.0 to 26.0 {230 to 255}
	Muffler Comp. **[42] <42>**	2	Hex. Socket Hd. Bolt M5 x 50 **[40] <40>**	7.0 to 11.0 {70 to 110}
Screws other than the above			M3	0.6 to 1.0 {6 to 10}
			M4	1.5 to 2.5 {15 to 25}
			M5	2.5 to 4.5 {25 to 45}
			M6	4.5 to 7.5 {45 to 75}

Hitachi Power Tools

LIST NO. E056

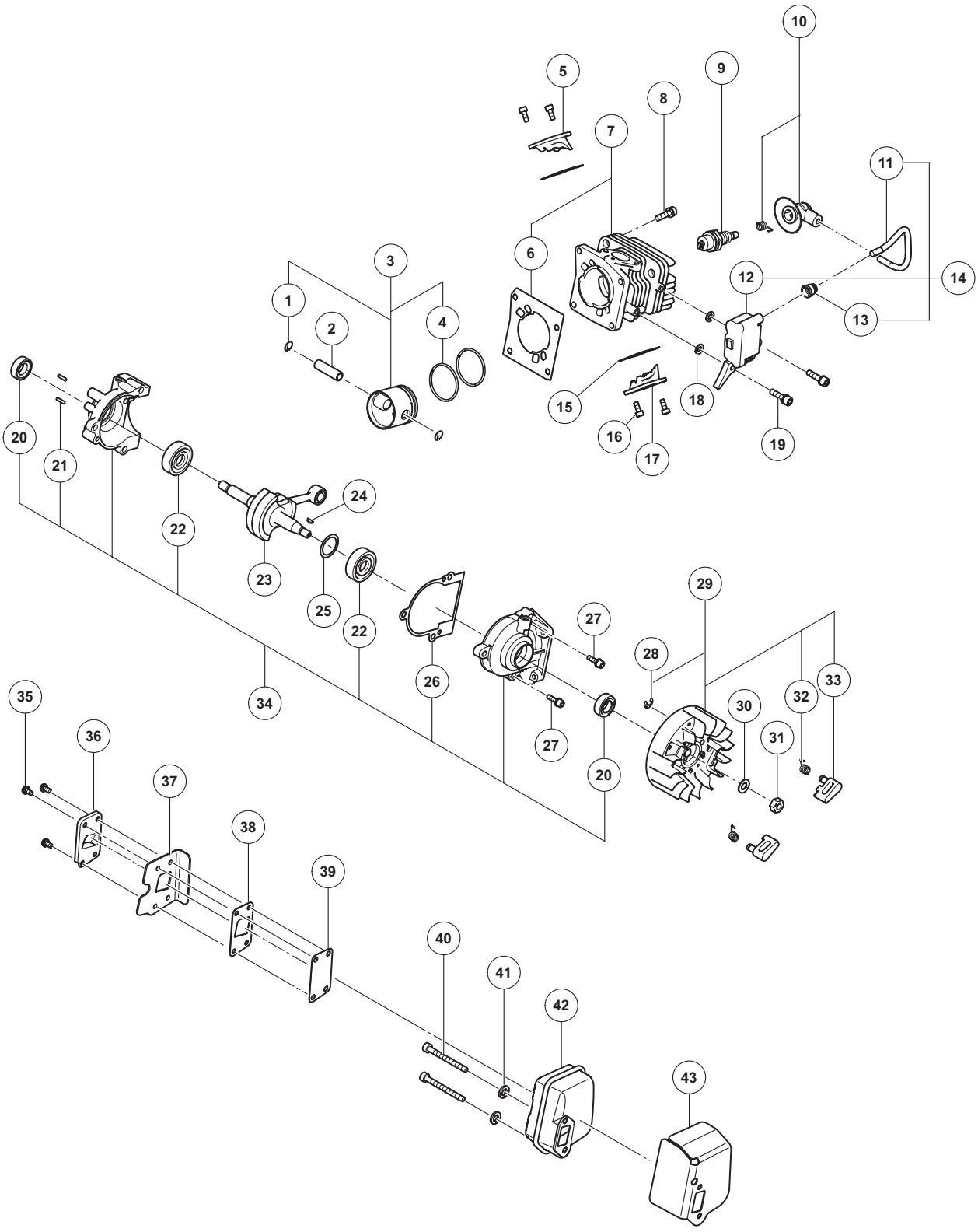
ENGINE TOOL PARTS LIST

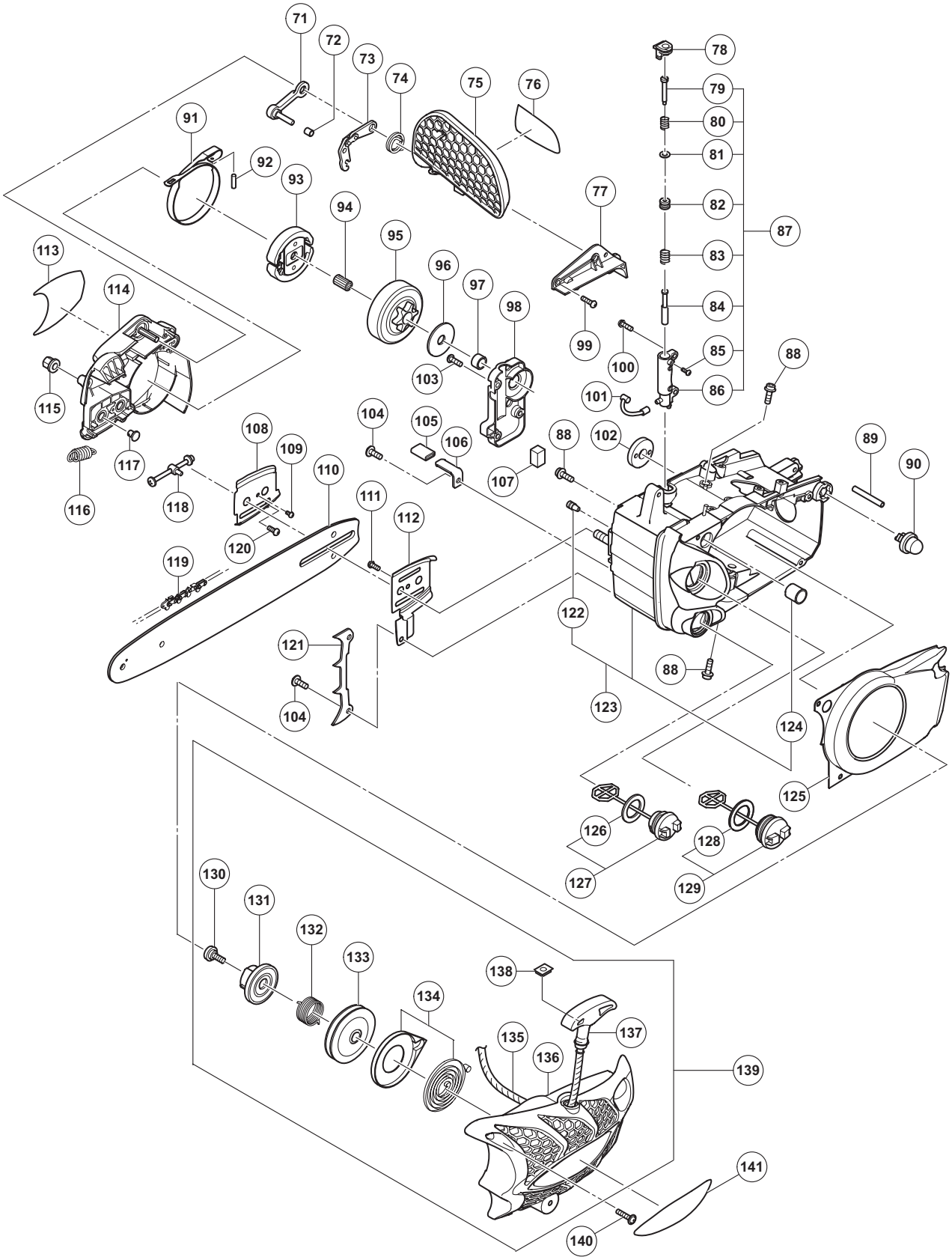
■ ENGINE CHAIN SAW

2009·3·3

Model CS 33EA

(E1)

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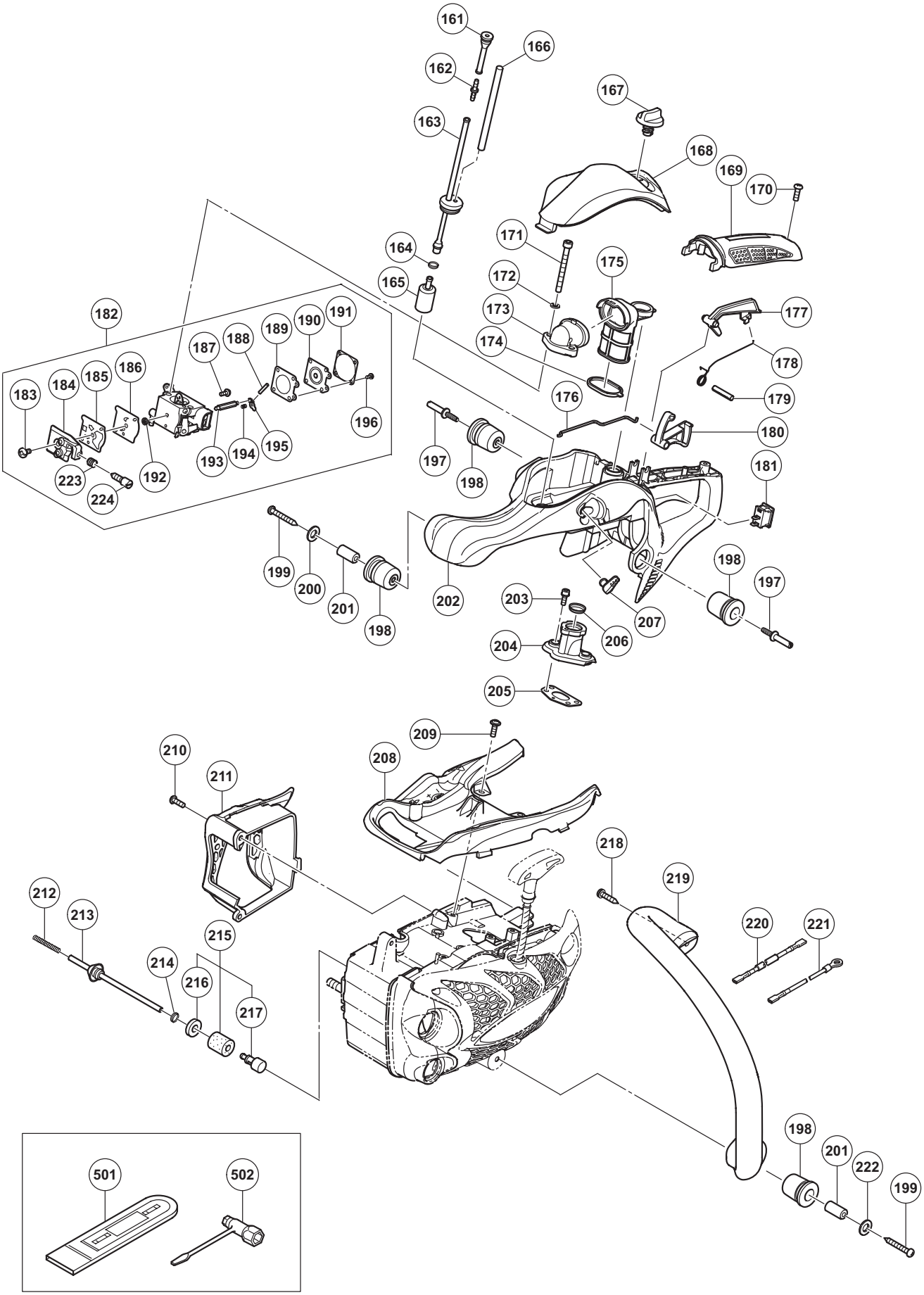
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	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
	1	668-5078	CIRCLIP	2		
	2	668-5079	PISTON PIN	1		
	3	668-5080	PISTON SET	1	INCLUD. 1,4	
	4	668-5081	PISTON RING	2		
	5	668-5082	SCAVENGING COVER (B)	1		
	6	668-5083	CYLINDER PACKING	1		
	7	668-5084	CYLINDER SET	1	INCLUD. 6	
	8	668-4668	HEX. HOLE BOLT M5X20/S	4		
*	9	668-5085	SPARK PLUG BPM6A	1	FOR USA	
*	9	668-5086	SPARK PLUG BPMR6A	1	FOR EUROPE, AUS	
	10	668-5087	SPARK PLUG CAP ASS'Y	1		
	11	668-5088	HIGH VOLTAGE CORD	1		
	12	668-5089	IGNITION COIL COMP.	1		
	13	668-4602	RUBBER CAP	1		
	14	668-5091	IGNITION COIL ASS'Y	1	INCLUD. 11-13	
	15	668-5092	COVER PACKING (A)	2		
	16	668-5093	HEX. SOCKET HD. BOLT M4X10	4		
	17	668-5094	SCAVENGING COVER (A)	1		
	18	668-4600	WASHER	2		
	19	668-4599	HEX. HOLE BOLT M4X18/WS	2		
	20	668-4607	OIL SEAL TB 12227	2		
	21	668-5095	NEEDLE ROLLER 2.5X9.8	2		
	22	668-5096	BALL BEARING 6201 A2C3	2		
	23	668-5097	CRANK SHAFT COMP.	1		
	24	668-4899	WOODRUFF KEY 3X13X4.5	1		
	25	668-5098	SHIM S T0.2	1		
	25	668-5099	SHIM S T0.3	1		
	26	668-5100	CRANK CASE PACKING	1		
	27	668-4668	HEX. HOLE BOLT M5X20/S	3		
	28	668-5101	D4E RETAINING RING	2		
	29	668-5102	MAGNETO ROTOR ASS'Y	1	INCLUD. 28, 32, 33	
	30	668-5103	BOLT WASHER M7	1		
	31	668-5104	FLYWHEEL NUT	1		
	32	668-5105	STARTER PAWL SPRING	2		
	33	668-5106	STARTER PAWL	2		
	34	668-5107	CRANK CASE ASS'Y	1	INCLUD. 20-22, 26	
*	35	986-662	MACHINE SCREW (W/WASHERS) M4X10	4	FOR EUROPE, USA	
*	35	668-5109	MACHINE SCREW (W/SP. WASHER) M4X8	4	FOR AUS, RUS	
	36	668-5110	EXHAUST PIPE	1		
	37	668-5111	MUFFLER SPECIAL PACKING	1		
*	38	668-5112	GAUZE FIXING PLATE	1	EXCEPT FOR AUS, RUS	
*	39	668-5113	MUFFLER GAUZE	1	EXCEPT FOR AUS, RUS	
	40	668-5114	HEX. SOCKET HD. BOLT M5X50	2		
	41	668-4661	WASHER 5	2		
*	42	668-5115	MUFFLER COMP.	1	FOR EUROPE, USA	
*	42	668-5116	MUFFLER COMP.	1	FOR AUS, RUS	
	43	668-5117	MUFFLER PACKING	1		
	71	668-5119	BRAKE SUPPORT PLATE COMP.	1		
	72	668-5120	COLLAR	1		
	73	668-5121	BRAKE LINK COMP.	1		

	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
	74	668-5122	BRAKE LEVER SPRING	1		
	75	668-5264	BRAKE HANDLE	1		
	76		CAUTION LABEL	1		
	77	668-5126	BRAKE LINK COVER	1		
	78	668-5127	OIL ADJUST GROMMET	1		
	79	668-5128	OIL PUMP ADJUSTER	1		
	80	668-5129	ADJUSTER SPRING	1		
	81	668-5070	BOLT WASHER M4	1		
	82	668-5130	OIL PUMP ADJUST CAP	1		
	83	668-5131	PUMP GEAR SPRING	1		
	84	668-5132	PUMP GEAR COMP.	1		
	85	668-5133	MACHINE SCREW M3X8	1		
	86	668-5134	OIL PUMP CASE COMP.	1		
	87	668-5135	OIL PUMP CASE ASS'Y	1	INCLUD. 79-86	
	88	668-5136	SEAL LOCK BOLT M5X15	5		
	89	668-5267	FUEL PIPE 2.5X4X90	1		
	90	668-5139	PRIMING PUMP COMP.	1		
	91	668-5140	BRAKE BAND	1		
	92	668-5141	NEEDLE ROLLER 3X9.8	1		
	93	668-5142	CLUTCH COMP.	1		
	94	668-5143	NEEDLE BEARING	1		
	95	668-5144	CLUTCH HOUSING COMP.	1		
	96	668-5145	CLUTCH WASHER	1		
	97	668-5146	CRANK SHAFT COLLAR	1		
	98	668-5147	OIL PUMP COVER	1		
	99	668-5148	TAPPING SCREW D4X15	3		
	100	668-5149	MACHINE SCREW (W/SP. WASHER) M4X14	2		
	101	668-5150	OIL PIPE (A)	1		
	102	668-5151	SCREW GEAR	1		
	103	668-5152	TAPPING SCREW D4.5X14	3		
	104	668-5153	TAPPING SCREW D4.5X14	3		
	105	668-5154	FUEL PIPE	1		
	106	668-5155	CHAIN CATCHER	1		
	107	668-5156	AIR VENT SPONGE	1		
	108	668-5157	GUIDE PLATE (B)	1		
	109	668-5158	TAPPING SCREW D3X8	1		
*	110	668-5294	CHAIN BAR 12 INCH 3/8 SP	1	FOR EUROPE, USA	
*	110	668-5295	CHAIN BAR 14 INCH 3/8 SP	1	FOR EUROPE, AUS, USA	
	111	668-5161	TAPPING SCREW D4X10	1		
	112	668-5162	GUIDE PLATE (A)	1		
	113		NAME PLATE (CS 33EA)	1		
	114	668-5165	SIDE COVER COMP.	1		
	115	668-5166	NUT	2		
	116	668-5167	BRAKE SPRING	1		
	117	668-5168	GEAR (A)	1		
	118	668-5169	CHAIN PULLER COMP.	1		
*	119	668-5170	SAW CHAIN (3/8X12") 91VG-45	1	FOR EUROPE, USA	
*	119	668-5171	SAW CHAIN (3/8X14") 91VG-52	1	FOR EUROPE, AUS, USA	
	120	668-5161	TAPPING SCREW D4X10	1		
	121	668-5270	SPIKE	1		

	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
	122	668-5173	AIR VENT VALVE (B)	1		
	123	668-5271	ENGINE CASE ASS'Y	1	INCLUD. 122, 124	
	124	668-5175	INNER CAP ASS'Y	1		
	125	668-5176	AIR DEFLECTOR	1		
	126	668-5177	OIL TANK CAP PACKING	1		
	127	668-5178	OIL TANK CAP ASS'Y	1	INCLUD. 126	
	128	668-5179	TANK CAP PACKING	1		
	129	668-5180	TANK CAP ASS'Y	1	INCLUD. 128	
	130	668-4679	SET SCREW	1		
	131	668-5182	CAM PLATE	1		
	132	668-5183	DAMPER SPRING	1		
	133	668-5184	STARTER PULLEY	1		
	134	668-5185	SPRING CASE ASS'Y	1		
	135	668-5186	ROPE	1		
	136	668-5187	FAN CASE COMP.	1		
	137	668-5188	STARTER HANDLE	1		
	138	668-5189	PLATE	1		
	139	668-5190	RECOIL STARTER ASS'Y	1	INCLUD. 130-138	
	140	668-5191	TAPPING SCREW D4.5X20	4		
	141		HITACHI LABEL (C)	1		
	161	668-5272	RUBBER PIPE	1		
	162	668-5196	PIPE JOINT	1		
	163	668-5197	SHIELD TUBE ASS'Y	1		
	164	668-5198	CLIP D6	1		
	165	668-5199	PUMP FILTER BODY ASS'Y	1		
	166	668-5200	FUEL PIPE 2.5X4X260	1		
	167	668-5228	CLEANER KNOB	1		
	168	668-5273	CLEANER COVER	1		
	169	668-5274	REAR HANDLE GRIP COMP.	1		
	170	668-5275	TAPPING SCREW D5X14	1		
	171	668-5114	HEX. SOCKET HD. BOLT M5X50	2		
	172	668-5226	WASHER M5 (BLACK)	2		
	173	668-5276	AIR CLEANER BASE	1		
	174	668-5277	CLEANER CAP	1		
	175	668-5278	CLEANER ELEMENT COMP.	1		
	176	668-5279	THROTTLE ROD	1		
	177	668-5280	TRIGGER LOCKOUT	1		
	178	668-5281	THROTTLE LEVER SPRING	1		
	179	668-5282	SPRING PIN 5X25	1		
	180	668-5283	THROTTLE LEVER	1		
	181	668-5239	STOP SWITCH	1		
*	182	668-5284	CARBURETOR ASS'Y WT-956	1	INCLUD. 183-196, 223, 224 FOR EUROPE, USA	
*	182	668-5285	CARBURETOR ASS'Y WT-959	1	INCLUD. 183-196, 223, 224 FOR AUS, RUS	
	183	668-5210	SCREW	1		
	184	668-5211	PUMP BODY	1		
	185	668-5212	PUMP GASKET	1		
	186	668-5213	PUMP DIAPHRAGM	1		
	187	668-5218	HINGE PIN SET SCREW	1		
	188	668-5219	HINGE PIN	1		
	189	668-5220	DIAPHRAGM PACKING	1		

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
190	668-4690	METERING DIAPHRAGM	1		
191	668-5222	DIAPHRAGM COVER	1		
192	668-4700	INLET SCREEN	1		
193	668-5215	NEEDLE VALVE	1		
194	668-5216	VALVE SPRING	1		
195	668-5217	CONTROL LEVER	1		
196	668-5223	SET SCREW	4		
197	668-5286	DAMPER SET BOLT	2		
198	668-5236	BUMPER COMP.	4		
199	668-5233	TAPPING SCREW D5X45	2		
200	668-5287	WASHER	1		
201	668-5235	COLLAR 28.2	2		
202	668-5288	REAR HANDLE (A) COMP.	1		
203	668-4595	HEX. HOLE BOLT M4X12/S	2		
204	668-5289	INTAKE COMP.	1		
205	668-5205	INTAKE PACKING	1		
206	668-5290	INLET MANIFOLD RING	1		
207	668-5206	CHOKE LEVER	1		
208	668-5291	ENGINE CASE COVER	1		
209	668-5153	TAPPING SCREW D4.5X14	4		
210	668-5152	TAPPING SCREW D4.5X14	2		
211	668-5245	MUFFLER COVER	1		
212	668-5246	PROTECTIVE COIL	1		
213	668-5247	SHIELD TUBE ASS'Y	1		
214	668-5198	CLIP D6	1		
215	668-5249	OIL FILTER BODY ASS'Y	1	INCLUD. 216, 217	
216	668-4661	WASHER 5	1		
217	668-5248	OIL FILTER BODY	1		
218	302-089	TAPPING SCREW (W/FLANGE) D5X20 (BLACK)	2		
219	668-5292	FRONT HANDLE	1		
220	668-5293	CORD 195MM	1		
221	668-5252	CORD 180MM	1		
222	668-5234	WASHER	1		
223	668-5297	IDLE ADJUST SPRING	1		
224	668-5298	IDLE ADJUST SCREW	1		

STANDARD ACCESSORIES

	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
*	501	668-5255	CHAIN COVER 12"	1	FOR EUROPE, USA	
*	501	668-5256	CHAIN COVER 14"	1	FOR EUROPE, AUS, USA	
	502	668-5257	COMBI BOX SPANNER 10/19MM	1		

Hitachi Power Tools

LIST NO. E055

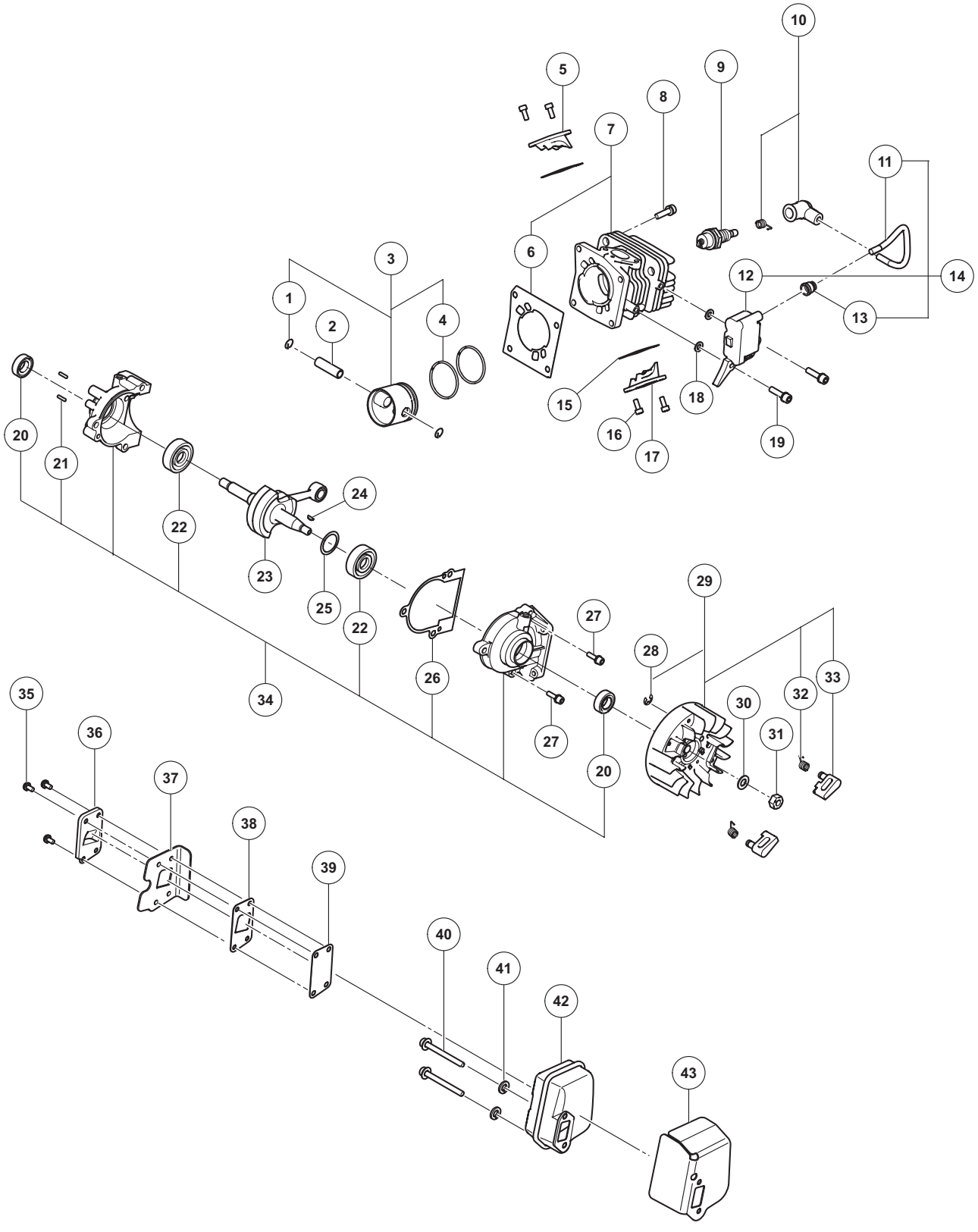
ENGINE TOOL PARTS LIST

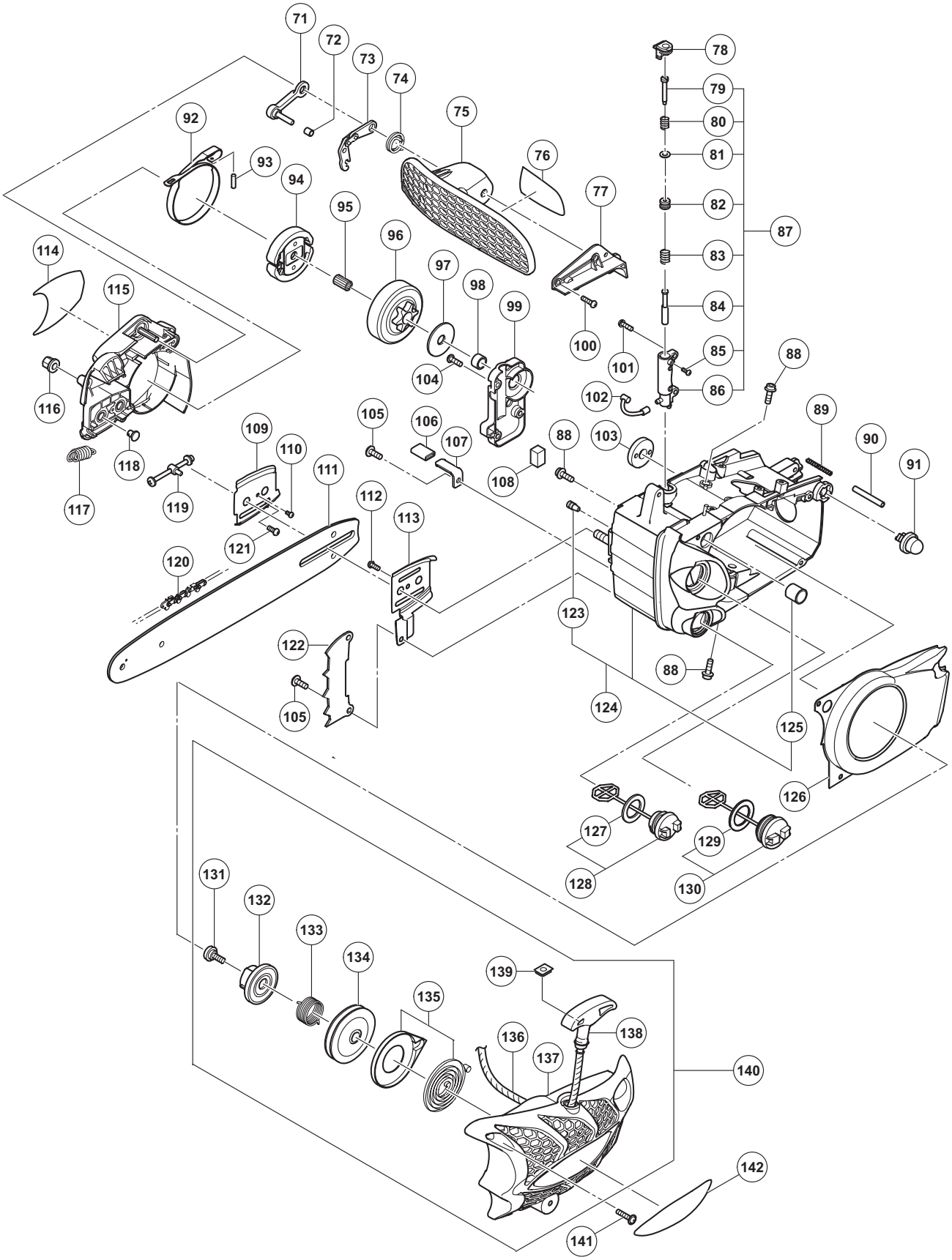
■ ENGINE CHAIN SAW

2009·3·3

Model CS 33ET

(E1)

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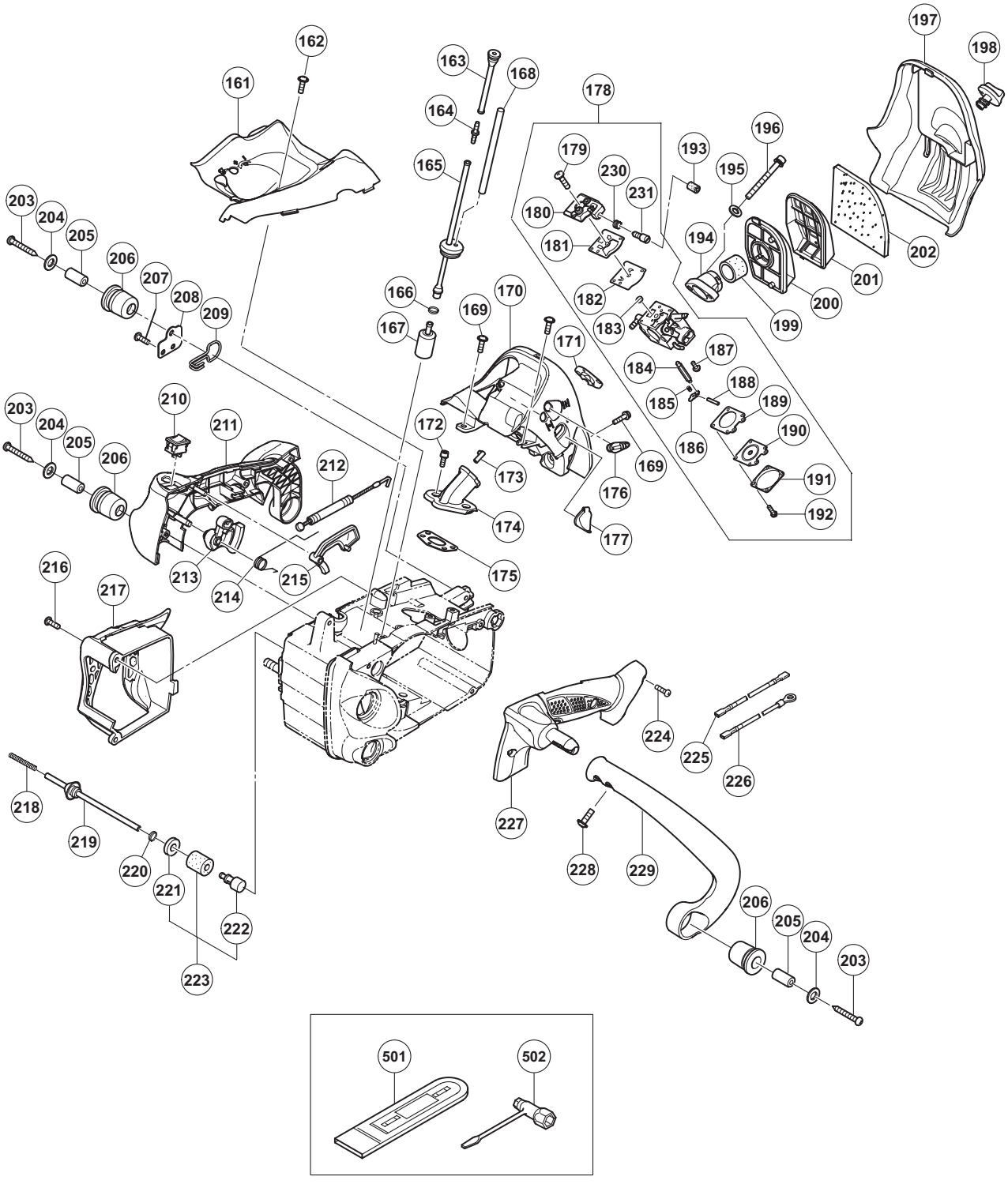
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	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
	1	668-5078	CIRCLIP	2		
	2	668-5079	PISTON PIN	1		
	3	668-5080	PISTON SET	1	INCLUD. 1,4	
	4	668-5081	PISTON RING	2		
	5	668-5082	SCAVENGING COVER (B)	1		
	6	668-5083	CYLINDER PACKING	1		
	7	668-5084	CYLINDER SET	1	INCLUD. 6	
	8	668-4668	HEX. HOLE BOLT M5X20/S	4		
*	9	668-5085	SPARK PLUG BPM6A	1	FOR USA	
*	9	668-5086	SPARK PLUG BPMR6A	1	FOR EUROPE, AUS	
	10	668-5087	SPARK PLUG CAP ASS'Y	1		
	11	668-5088	HIGH VOLTAGE CORD	1		
	12	668-5089	IGNITION COIL COMP.	1		
	13	668-4602	RUBBER CAP	1		
	14	668-5091	IGNITION COIL ASS'Y	1	INCLUD. 11-13	
	15	668-5092	COVER PACKING (A)	2		
	16	668-5093	HEX. SOCKET HD. BOLT M4X10	4		
	17	668-5094	SCAVENGING COVER (A)	1		
	18	668-4600	WASHER	2		
	19	668-4599	HEX. HOLE BOLT M4X18/WS	2		
	20	668-4607	OIL SEAL TB 12227	2		
	21	668-5095	NEEDLE ROLLER 2.5X9.8	2		
	22	668-5096	BALL BEARING 6201 A2C3	2		
	23	668-5097	CRANK SHAFT COMP.	1		
	24	668-4899	WOODRUFF KEY 3X13X4.5	1		
	25	668-5098	SHIM S T0.2	1		
	25	668-5099	SHIM S T0.3	1		
	26	668-5100	CRANK CASE PACKING	1		
	27	668-4668	HEX. HOLE BOLT M5X20/S	3		
	28	668-5101	D4E RETAINING RING	2		
	29	668-5102	MAGNETO ROTOR ASS'Y	1	INCLUD. 28, 32, 33	
	30	668-5103	BOLT WASHER M7	1		
	31	668-5104	FLYWHEEL NUT	1		
	32	668-5105	STARTER PAWL SPRING	2		
	33	668-5106	STARTER PAWL	2		
	34	668-5107	CRANK CASE ASS'Y	1	INCLUD. 20-22, 26	
*	35	986-662	MACHINE SCREW (W/WASHERS) M4X10	4	FOR USA	
*	35	668-5109	MACHINE SCREW (W/SP. WASHER) M4X8	4	FOR EUROPE, AUS	
	36	668-5110	EXHAUST PIPE	1		
	37	668-5111	MUFFLER SPECIAL PACKING	1		
*	38	668-5112	GAUZE FIXING PLATE	1	FOR USA	
*	39	668-5113	MUFFLER GAUZE	1	FOR USA	
	40	668-5114	HEX. SOCKET HD. BOLT M5X50	2		
	41	668-4661	WASHER 5	2		
*	42	668-5115	MUFFLER COMP.	1	FOR USA	
*	42	668-5116	MUFFLER COMP.	1	FOR EUROPE, AUS	
	43	668-5117	MUFFLER PACKING	1		
	71	668-5119	BRAKE SUPPORT PLATE COMP.	1		
	72	668-5120	COLLAR	1		
	73	668-5121	BRAKE LINK COMP.	1		

	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
	74	668-5122	BRAKE LEVER SPRING	1		
	75	668-5123	BRAKE HANDLE	1		
	76		CAUTION MARK	1		
	77	668-5126	BRAKE LINK COVER	1		
	78	668-5127	OIL ADJUST GROMMET	1		
	79	668-5128	OIL PUMP ADJUSTER	1		
	80	668-5129	ADJUSTER SPRING	1		
	81	668-5070	BOLT WASHER M4	1		
	82	668-5130	OIL PUMP ADJUST CAP	1		
	83	668-5131	PUMP GEAR SPRING	1		
	84	668-5132	PUMP GEAR COMP.	1		
	85	668-5133	MACHINE SCREW M3X8	1		
	86	668-5134	OIL PUMP CASE COMP.	1		
	87	668-5135	OIL PUMP CASE ASS'Y	1	INCLUD. 79-86	
	88	668-5136	SEAL LOCK BOLT M5X15	5		
	89	668-5137	PROTECTIVE COIL	1		
	90	668-5138	FUEL PIPE 2.5X4X42	1		
	91	668-5139	PRIMING PUMP COMP.	1		
	92	668-5140	BRAKE BAND	1		
	93	668-5141	NEEDLE ROLLER 3X9.8	1		
	94	668-5142	CLUTCH COMP.	1		
	95	668-5143	NEEDLE BEARING	1		
	96	668-5144	CLUTCH HOUSING COMP.	1		
	97	668-5145	CLUTCH WASHER	1		
	98	668-5146	CRANK SHAFT COLLAR	1		
	99	668-5147	OIL PUMP COVER	1		
	100	668-5148	TAPPING SCREW D4X15	3		
	101	668-5149	MACHINE SCREW (W/SP. WASHER) M4X14	2		
	102	668-5150	OIL PIPE (A)	1		
	103	668-5151	SCREW GEAR	1		
	104	668-5152	TAPPING SCREW D4.5X14	3		
	105	668-5153	TAPPING SCREW D4.5X14	3		
	106	668-5154	FUEL PIPE	1		
	107	668-5155	CHAIN CATCHER	1		
	108	668-5156	AIR VENT SPONGE	1		
	109	668-5157	GUIDE PLATE (B)	1		
	110	668-5158	TAPPING SCREW D3X8	1		
*	111	668-5294	CHAIN BAR 12 INCH 3/8 SP	1	FOR EUROPE, AUS, USA	
*	111	668-5295	CHAIN BAR 14 INCH 3/8 SP	1	FOR EUROPE, USA	
	112	668-5161	TAPPING SCREW D4X10	1		
	113	668-5162	GUIDE PLATE (A)	1		
	114		NAME PLATE (CS 33ET)	1		
	115	668-5165	SIDE COVER COMP.	1		
	116	668-5166	NUT	2		
	117	668-5167	BRAKE SPRING	1		
	118	668-5168	GEAR (A)	1		
	119	668-5169	CHAIN PULLER COMP.	1		
*	120	668-5170	SAW CHAIN (3/8X12") 91VG-45	1	FOR EUROPE, AUS, USA	
*	120	668-5171	SAW CHAIN (3/8X14") 91VG-52	1	FOR EUROPE, USA	
	121	668-5161	TAPPING SCREW D4X10	1		

	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
*	122	668-5172	SPIKE	1	FOR EUROPE, AUS	
	123	668-5173	AIR VENT VALVE (B)	1		
	124	668-5174	ENGINE CASE ASS'Y	1	INCLUD. 123, 125	
	125	668-5175	INNER CAP ASS'Y	1		
	126	668-5176	AIR DEFLECTOR	1		
	127	668-5177	OIL TANK CAP PACKING	1		
	128	668-5178	OIL TANK CAP ASS'Y	1	INCLUD. 127	
	129	668-5179	TANK CAP PACKING	1		
	130	668-5180	TANK CAP ASS'Y	1	INCLUD. 129	
	131	668-4679	SET SCREW	1		
	132	668-5182	CAM PLATE	1		
	133	668-5183	DAMPER SPRING	1		
	134	668-5184	STARTER PULLEY	1		
	135	668-5185	SPRING CASE ASS'Y	1		
	136	668-5186	ROPE	1		
	137	668-5187	FAN CASE COMP.	1		
	138	668-5188	STARTER HANDLE	1		
	139	668-5189	PLATE	1		
	140	668-5190	RECOIL STARTER ASS'Y	1	INCLUD. 131-139	
	141	668-5191	TAPPING SCREW D4.5X20	4		
	142		HITACHI LABEL (C)	1		
	161	668-5194	ENGINE CASE COVER	1		
	162	668-5152	TAPPING SCREW D4.5X14	3		
	163	668-5195	RUBBER PIPE	1		
	164	668-5196	PIPE JOINT	1		
	165	668-5197	SHIELD TUBE ASS'Y	1		
	166	668-5198	CLIP D6	1		
	167	668-5199	PUMP FILTER BODY ASS'Y	1		
	168	668-5200	FUEL PIPE 2.5X4X260	1		
	169	668-5153	TAPPING SCREW D4.5X14	3		
	170	668-5201	CLEANER BODY COMP.	1		
	171	668-5202	INLET MANIFOLD SPACER	1		
	172	668-4595	HEX. HOLE BOLT M4X12/S	2		
	173	668-5203	PULSE GUIDE	1		
	174	668-5204	INTAKE COMP.	1		
	175	668-5205	INTAKE PACKING	1		
	176	668-5206	CHOKE LEVER	1		
	177	668-5207	ADJUSTER CAP	1		
*	178	668-5208	CARBURETOR ASS'Y WT-940	1	INCLUD. 179-192, 230, 231 FOR USA, EUROPE	
*	178	668-5209	CARBURETOR ASS'Y WT-949	1	INCLUD. 179-192, 230, 231 FOR AUS, RUS	
	179	668-5210	SCREW	1		
	180	668-5211	PUMP BODY	1		
	181	668-5212	PUMP GASKET	1		
	182	668-5213	PUMP DIAPHRAGM	1		
	183	668-4700	INLET SCREEN	1		
	184	668-5215	NEEDLE VALVE	1		
	185	668-5216	VALVE SPRING	1		
	186	668-5217	CONTROL LEVER	1		
	187	668-5218	HINGE PIN SET SCREW	1		
	188	668-5219	HINGE PIN	1		

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
189	668-5220	DIAPHRAGM PACKING	1		
190	668-4690	METERING DIAPHRAGM	1		
191	668-5222	DIAPHRAGM COVER	1		
192	668-5223	SET SCREW	4		
193	668-5224	IDLE SPONGE	1		
194	668-5225	AIR CLEANER BASE	1		
195	668-5226	WASHER M5 (BLACK)	2		
196	668-5114	HEX. SOCKET HD. BOLT M5X50	2		
197	668-5227	CLEANER COVER	1		
198	668-5228	CLEANER KNOB	1		
199	668-5229	CLEANER SPONGE (B)	1		
200	668-5230	CLEANER ELEMENT A COMP.	1		
201	668-5231	CLEANER ELEMENT B COMP.	1		
202	668-5232	CLEANER SPONGE (A)	1		
203	668-5233	TAPPING SCREW D5X45	3		
204	668-5234	WASHER	3		
205	668-5235	COLLAR 28.2	3		
206	668-5236	BUMPER COMP.	3		
207	668-5153	TAPPING SCREW D4.5X14	2		
208	668-5237	HOOK HOLDER PLATE	1		
209	668-5238	HOOK	1		
210	668-5239	STOP SWITCH	1		
211	668-5240	REAR HANDLE (B) COMP.	1		
212	668-5241	THROTTLE WIRE COMP.	1		
213	668-5242	THROTTLE LEVER	1		
214	668-5243	THROTTLE LEVER SPRING	1		
215	668-5244	TRIGGER LOCKOUT	1		
216	668-5152	TAPPING SCREW D4.5X14	2		
217	668-5245	MUFFLER COVER	1		
218	668-5246	PROTECTIVE COIL	1		
219	668-5247	SHIELD TUBE ASS'Y	1		
220	668-5198	CLIP D6	1		
221	668-4661	WASHER 5	1		
222	668-5248	OIL FILTER BODY	1		
223	668-5249	OIL FILTER BODY ASS'Y	1	INCLUD. 221, 222	
224	668-5250	TAPPING SCREW D4X15	3		
225	668-5251	CORD 325MM	1		
226	668-5252	CORD 180MM	1		
227	668-5253	REAR HANDLE (A) COMP.	1		
228	668-5074	TAPPING SCREW D5X16	2		
229	668-5254	FRONT HANDLE	1		
230	668-5297	IDLE ADJUST SPRING	1		
231	668-5298	IDLE ADJUST SCREW	1		

STANDARD ACCESSORIES

	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
*	501	668-5255	CHAIN COVER 12"	1	FOR EUROPE, AUS, USA	
*	501	668-5256	CHAIN COVER 14"	1	FOR EUROPE, USA	
	502	668-5257	COMBI BOX SPANNER 10/19MM	1		